



Marine Corps Air Station (MCAS) Yuma Yuma, Arizona

Range Environmental Vulnerability Assessment (REVA) Factsheet

May 2023

Background

Department of Defense (DoD) uses and manages operational ranges to support national security objectives and maintain the high state of operational readiness essential to its mission requirements.

DoD conducts non-regulatory, proactive, and comprehensive operational range assessments (ORAs) to support the long-term sustainability of these ranges while protecting human health and the environment.

The purpose of an ORA is to determine whether there is a release or substantial threat of a release of munitions constituents (MC) from an operational range to an off-range area that exceeds an applicable regulatory standard or creates a potential unacceptable risk to human health or the environment.

The Range Environmental Vulnerability Assessment (REVA) Program is the U.S. Marine Corps (USMC) program implemented to meet the DoD ORA requirements.

ORA Findings (March 2023)

The MCAS Yuma PR1 concluded that MC source-receptor pathways are incomplete for groundwater, surface water, and soil, indicating there is no known off-range migration of MC (lead, HE, perchlorate) presenting an unacceptable risk to human health or the environment. MC migration is limited by large depth to groundwater, long distance to surface water, low annual precipitation, and high evaporation. Groundwater is extremely limited and not used at CMAGR and not used for potable purposes at BMGR West. Soil sample results at the off-range boundaries indicate that MC is not migrating off range at concentrations that present a risk.

Next Steps

The operational ranges will be reassessed during the next REVA Periodic Review (5 years) or sooner if changes to site conditions or training necessitate expedited review.

Operational Ranges Overview

The primary mission of MCAS Yuma is to provide premier aviation training for the USMC. MCAS Yuma is comprised of three noncontiguous areas in southwest Arizona and southeast California, just north of the Mexico border: MCAS Yuma (administrative facilities), Barry M. Goldwater Range (BMGR) West, and Chocolate Mountains Aerial Gunnery Range (CMAGR) North and South. Training ranges are in BMGR West and CMAGR. Live fire, pyrotechnics, and blank ammunition are authorized at BMGR West ranges, but only inert air-to-ground munitions are authorized at ground targets. CMAGR contains ranges and air-to-ground impact areas where live ordnance is authorized for several targets.

This PR1 evaluated munitions use at MCAS Yuma from 2013—2020. Primary MC evaluated were lead at BMGR West and lead, perchlorate, and high explosives (HE) at CMAGR North and South.



Range Assessment Overview

Scope: The REVA PR1 covers munitions used at MCAS Yuma from 1 October 2013—31 December 2020. The previous REVA evaluations concluded there was no immediate threat to off-range receptors due to MC migration from operational ranges.

Approach: REVA uses a Conceptual Site Model (CSM) to inform decision making. A complete CSM pathway consists of an MC source (lead, HE, and/or perchlorate), transport mechanism of MC to an off-range exposure media, and receptor interaction with the off-range media. For this REVA Periodic Review, data were

collected to update the previous CSM (2007—2013). This included reviewing operational ranges and any changes in range use, migration pathways, and off-range ecological and human receptors.

Source: The primary MC source at BMGR West is lead at small arms ranges (SARs). Targets and impact areas at CMAGR North and South and some ranges near the southern boundary of CMAGR North produce lead, perchlorate and/or HE sources. MCAS Yuma closes ranges twice annually to conduct operational range clearance (ORC) which removes MC from several ranges and target areas.

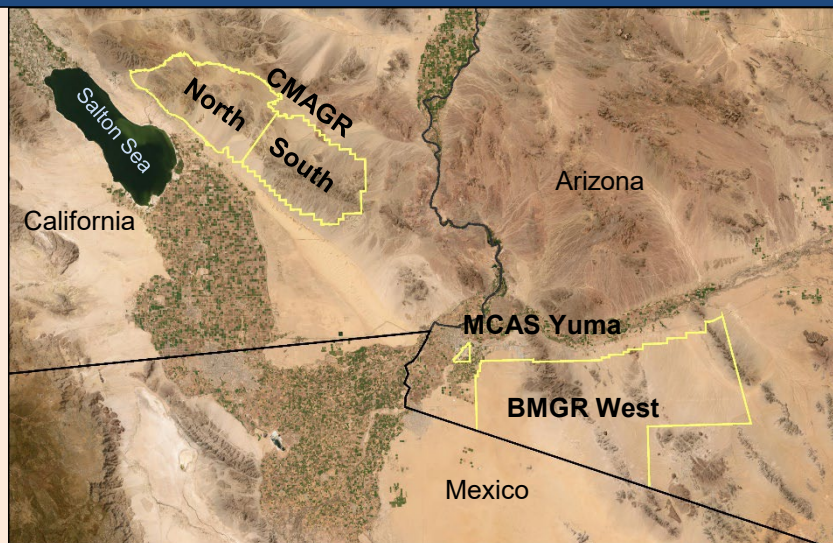
Transport Mechanisms: Surface runoff during infrequent large storms is the primary transport mechanism of MC through eroded soil/sediment and dissolution of MC into runoff. There are no perennial surface water bodies on the installation, and the large depth to groundwater at CMAGR and BMGR West suggests MC transport by infiltration to groundwater is not likely due to low precipitation and high evaporation rates.

Off-Range Receptors: Potential MC exposure to humans via groundwater is unlikely as downgradient wells are used for non-potable purposes or monitoring in BMGR West and CMAGR South, and there are no wells in vicinity of CMAGR North. Possible exposure to groundwater would be incidental contact during non-potable uses or data collection. Surface runoff has no known uses and likely infiltrates or evaporates before reaching surface water bodies several miles downgradient. Incidental contact could occur with surface runoff from storms.

Ecological receptors include protected species that may interact with off-range media. The Sonoran desert tortoise is present near and downgradient of ranges at BMGR West, and the desert tortoise is found at CMAGR; however, its critical habitat on and near CMAGR is upgradient of surface runoff flow paths and most targets and ranges. The tortoises may occasionally ingest surface runoff (when available) and soil.

Results: The CSM pathways were determined to be incomplete for MC migration to off-range receptors. This conclusion was reached for groundwater and surface runoff based on the large depths to groundwater or limited groundwater potential, long distances to surface water bodies, low annual precipitation, high evaporation, and limited or no receptors. Soil samples were collected in September 2022 in BMGR West and CMAGR North because of inconclusive pathways for select subwatersheds. Lead concentrations in samples were less than established background concentrations, and HE was not detected. These results indicated these soil migration pathways are incomplete.

Conclusion: The REVA PR1 for MCAS Yuma concludes there is no known off-range MC migration that creates an unacceptable risk to human health or the environment. The operational ranges will be reassessed during the next REVA Periodic Review.



For more information, contact Ian Thompson (ian.thompson@usmc.mil).

For more information on the DoD Operational Range Assessment Program visit <http://www.denix.osd.mil/sri/home/>